

LISTING OF THE CLAIMS

We claim:

1. (Currently Amended) A method of forming a web, comprising:
  - discharging stock flow from a headbox onto a wire, the stock flow including water and fibers;
  - vibrating a vibrational head, the vibrational head supported by a frame and having upstream and downstream portions with respect to wire movement past the vibrational head;
  - lifting and lowering the upstream and downstream portions of the vibrational head independently with respect to the frame responsive to vibrating the vibrational head;
  - transferring a vibrational force to the wire by directly contacting the wire with a vibrating element the vibrational head;
  - changing at least one of the speed at which the wire is travelling and the frequency of the vibrational force independently of the frequency of the vibrational force and the speed at which the wire is travelling, respectively; and
  - draining at least some of the water from the stock flow to cause the fibers to form a web.
2. (Original) The method of claim 1, wherein transferring a vibrational force to the wire includes transferring a vibrational force having a frequency of at least 1,000 Hertz.
3. (Withdrawn).
4. (Original) The method of claim 1, further comprising adjusting an amplitude of the vibrational force transferred to the wire independently of at least one of the frequency of the vibrational force and the speed at which the wire is travelling.
5. (Original) The method of claim 1, wherein transferring a vibrational force to the wire includes transferring a vibrational force to an underside of a substantially horizontal wire.
6. (Original) The method of claim 1, wherein transferring a vibrational force to the wire includes transferring a vibrational force to the wire during formation of an embryonic web.

7. (Original) The method of claim 6, wherein transferring a vibrational force to the wire includes transferring a vibrational force to the wire before the web has a fibrous consistency of approximately 5 percent.
8. (Currently Amended) The method of claim 1, wherein the vibrating element is a vibrational head is coupled to a vibrating device in a papermaking machine, the method further comprising replacing the vibrational head with another vibrational head during operation of the papermaking machine.
9. (Currently Amended) The method of claim 1, wherein the vibrating element is coupled to a frame is part of a papermaking machine, the method further comprising dampening vibrations from between the papermaking machine to and the vibrating element vibrational head.
10. (Currently Amended) The method of claim 1, further comprising lubricating the wire upstream of the vibrating element vibrational head.
11. (Currently Amended) A vibrational device for use with a papermaking machine, the papermaking machine including a wire for receiving stock flow, the vibrational device comprising:
  - a vibrational device frame;
  - at least one vibration-inducing mechanism coupled to the vibrational device frame, the at least one vibration-inducing mechanism operable to generate a vibrational force having a frequency that is independent of a speed at which the wire is travelling; and
  - a vibrational head coupled to the at least one vibration-inducing mechanism and in direct contact with the wire, the vibrational head having upstream and downstream portions both movable independently with respect to the vibrational device frame toward and away from the wire to impart the vibrational force to the wire.
12. (Original) The vibrational device of claim 11, wherein the frequency of the vibrational force is adjustable.

13. (Original) The vibrational device of claim 11, wherein the vibrational head has a range of vibrational movement and is in direct contact with the wire in only part of the range of vibrational movement.
14. (Original) The vibrational device of claim 11, wherein the at least one vibration-inducing mechanism is a pneumatic mechanism operable to generate a vibrational force having a frequency of at least 1,000 Hertz.
15. (Original) The vibrational device of claim 11, wherein the at least one vibration-inducing mechanism is an electro-magnetic mechanism operable to generate a vibrational force having a frequency of at least 1,000 Hertz.
16. – 17. (Withdrawn)
18. (Original) The vibrational device of claim 11, wherein the at least one vibration-inducing mechanism generates a vibrational force of approximately 20 to 7000 pounds having an amplitude of up to approximately 0.120 inches.
19. (Original) The vibrational device of claim 11, wherein the vibrational device is positioned beneath the wire.
20. (Original) The vibrational device of claim 11, wherein the papermaking machine has a papermaking machine frame and wherein the vibrational device frame is mountable on the papermaking machine frame.
21. (Original) The vibrational device of claim 11, wherein the vibrational device frame extends substantially across the wire.
22. (Original) The vibrational device of claim 11, wherein the at least one vibration-inducing mechanism and the vibrational head are coupled via a sliding connection enabling removal of the vibrational head from the vibrational device.
23. (Original) The vibrational device of claim 22, wherein the sliding connection is one of a dovetail connection and a T-shaped connection.

24. (Original) The vibrational device of claim 11, further comprising a vibration isolator coupled to the vibrational head and positioned to absorb vibrations from the papermaking machine.

25. (Original) The vibrational device of claim 11, wherein the vibrational head extends substantially across the wire.

26. (Original) The vibrational device of claim 11, wherein the vibrational head has a land area positioned at an angle with respect to the wire and through which the vibrational force is transmitted from the vibrational head to the wire.

27. (Currently Amended) The vibrational device of claim 26, wherein the ~~vibrational head includes an upstream portion which slopes away from the wire at an angle of between 0 to 15 degrees to push water into the wire during movement of the wire.~~

28. – 106. (Withdrawn).

107. (Currently Amended) A vibrational device for use with a papermaking machine, the papermaking machine including a wire for receiving stock flow, the vibrational device comprising:

a vibrational device frame;

at least one vibration-inducing mechanism coupled to the vibrational device frame; and

a vibrational head coupled to the at least one vibration-inducing mechanism and in direct contact with the wire to impart the vibrational force to the wire, the vibrational head including at least one of an upstream portion which slopes away from the wire to define a gap between the upstream portion and the wire and a downstream portion which slopes away from the wire to define a gap between the downstream portion and the wire.

108. (Original) The vibrational head of claim 107, wherein the upstream portion slopes away from the wire at an angle of between approximately 0 to 15 degrees.

109. (Withdrawn).

110. (Original) The vibrational device of claim 107, wherein the at least one vibration-inducing mechanism and the vibrational head are coupled via a sliding connection enabling removal of the vibrational head from the vibrational device.

111. (Original) The vibrational device of claim 110, wherein the sliding connection is one of a dovetail connection and a T-shaped connection.

112. – 114. (Withdrawn)

115. (New) A vibrational device for use with a papermaking machine having a machine direction and a cross-machine direction, the papermaking machine including a wire positioned to receive stock flow and movable in the machine direction, the vibrational device comprising:  
a vibrational device frame;

a first vibration isolator coupled to the vibrational device frame to dampen vibration transmission to the papermaking machine;

a vibration-inducing mechanism coupled to the vibrational device frame, the vibration-inducing mechanism operable to generate a vibration having a frequency, the vibration-inducing mechanism positioned laterally with respect to the first vibration isolator in the cross-machine direction; and

a vibrational head coupled to the vibration-inducing mechanism and directly contacting the wire to impart the vibration to the wire.

116. (New) The vibrational device of claim 115, further comprising a second vibration isolator coupled to the vibrational device frame and positioned laterally with respect to the vibration-inducing mechanism in the cross-machine direction and on a side of the vibration-inducing mechanism opposite that of the first vibration isolator.

117. (New) The vibrational device of claim 116, wherein the first and second vibration isolators are located on opposite ends of the vibrational head.

118. (New) The vibrational device of claim 116, further comprising third and fourth vibration isolators coupled to the vibrational device frame and positioned on opposite ends of the vibration-inducing mechanism in the cross-machine direction.

119. (New) The vibrational device of claim 118, wherein the vibrational head has leading and trailing edges with respect to the machine direction and opposite ends, the first and second vibration isolators being located proximate the leading edge on opposite ends of the vibrational head, and the third and fourth vibration isolators being located proximate the trailing edge on opposite ends of the vibrational head.

120. (New) A method of forming a web in a papermaking machine having a vibrational device with a vibrational device frame, the method comprising:

discharging stock flow onto a wire travelling in a machine direction, the stock flow including water and fibers;

transferring a vibration to the wire with a vibration-inducing mechanism, the vibration having a first frequency;

dampening at least some of the vibration with a first vibration isolator located laterally with respect to the vibration-inducing mechanism in a cross-machine direction; and

draining at least some of the water from the stock flow to cause the fibers to form a web.

121. (New) The method of claim 120, further comprising dampening at least some of the vibration with a second vibration isolator positioned laterally with respect to the vibration-inducing mechanism in a cross-machine direction and located on a side of the vibration-inducing mechanism opposite that of the first vibration isolator.

122. (New) The method of claim 121, wherein transferring the vibration to the wire includes transferring the vibration to a vibrational head having leading and trailing edges with respect to the machine direction and opposite ends, the head directly contacting the wire to impart the vibration.

123. (New) The method of claim 122, wherein the first and second vibration isolators are located on opposite ends of the vibrational head to dampen the vibration.

124. (New) The method of claim 122, further comprising dampening the vibration with third and fourth vibration isolators, the first and second vibration isolators being located proximate the leading edge on opposite ends of the vibrational head, and the third and fourth vibration isolators being located proximate the trailing edge on opposite ends of the vibrational head.